

REMARKS

Claim Rejections

Claims 25-28, 33-34, and 36-37 are rejected under 35 U.S.C. § 102(e) as being anticipated by Giri et al. (U.S. 6,765,152). Claims 29-30 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Giri et al. in view of Klein et al. (U.S. 2004/0145051). Claim 31 is rejected under 35 U.S.C. §103(a) as being unpatentable over Giri et al. in view of Kikuma et al. (U.S. 6,621,169). Claims 32 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Giri et al. in view of Koopmans (U.S. 2004/0035840). Claims 38 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Giri et al. in view of Higgins III (U.S. 5,583,377).

Drawings

It is noted that no Patent Drawing Review (Form PTO-948) was received with the outstanding Office Action. Thus, Applicant must assume that the drawings are acceptable as filed.

Claim Amendments

By this Amendment, Applicant has amended claim 25 of this application. It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

In the present invention, the dummy die 130 is a silicon substrate having no electrically calculating function. The dummy die has a redistribution layer 133 formed thereon providing a tough structure for mounting a flip chip 120 and connecting bonding wires 137, also providing zero stress between the flip chip 120 and the dummy die 130.

The primary reference to Giri et al. discloses a multi-chip module having chips on two sides including a frame (12), a large semiconductor device (22) located above the thin-film structure, a thin-film structure (18), and a plurality of semiconductor devices (20) located below the thin-film structure. The thin-film

structure (18) is a soft multilayer polyimide on which the large semiconductor device (22) and the plurality of semiconductor devices (20) are mounted. The thin-film structure of Giri et al. should not be considered a dummy die which is a silicon substrate having no electrically calculating function and a redistribution layer.

Giri et al. teaches a stiffening material located on the sides of the semiconductor devices and a thermal epoxy (46) located on a top thereof.

Giri et al. do not teach a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer, connected to the bottom substrate surface and aligned with the substrate opening having a redistribution layer; the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening; nor do Giri et al. teach a package body located in the substrate opening and encasing the chip.

It is axiomatic in U.S. patent law that, in order for a reference to anticipate a claimed structure, it must clearly disclose each and every feature of the claimed structure. Applicant submits that it is abundantly clear, as discussed above, that Giri et al. do not disclose each and every feature of Applicant's amended claims and, therefore, could not possibly anticipate these claims under 35 U.S.C. § 102. Absent a specific showing of these features, Giri et al. cannot be said to anticipate any of Applicant's amended claims under 35 U.S.C. § 102.

The secondary reference to Klein et al. discloses a semiconductor component having a stacked dice and including a base die (12) a first secondary die (14-1) a second secondary die (14-2), terminal contacts (18) and a package substrate (120). There is no indication that either of the first secondary or the second secondary die is a chip.

Klein et al. do not teach a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer; nor do Klein et al. teach the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening.

The secondary reference to Kikuma et al. discloses a stacked semiconductor device including a substrate (108), a semiconductor chip (102) located on the

substrate and having a redistribution layer (114), a chip (104) located above the redistribution layer, bonding wires (116) connecting the distribution layer to the substrate, and an adhesive (112) connecting the semiconductor chip to the substrate.

Kikuma et al. do not teach a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer; nor do Kikuma et al. teach the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening.

The secondary reference to Koopmans discloses a component installation removal and replacement apparatus including a substrate (34), connected to contacts (26, 28) by a redistribution layer (21), the redistribution layer is located on a flip-chip (10) and includes first and second dielectric layers (22, 24).

Koopmans does not teach a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer; nor does Koopmans teach the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening.

The secondary reference to Higgins, III teaches a pad array semiconductor device including a substrate (42) with an opening (20) having a ledge (44), a heat sink (46) located in an opening, and a semiconductor die (13) located on the heat sink .

Higgins, III does not teach a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer; nor does Higgins, III teach the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening.

Even if the teachings of Giri et al., Klein et al., Kikuma et al., Koopmans, and Higgins, III were combined, as suggested by the Examiner, the resultant combination does not suggest: a dummy die being a silicon substrate having no electrically calculating function and having a redistribution layer; nor does the combination suggest the plurality of flip-chip pads and the plurality of connecting pads are located on a top surface of the dummy die below the substrate opening.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over 40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the appealed claims did so by what appears to us to be a piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning

quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Giri et al., Klein et al., Kikuma et al., Koopmans, or Higgins, III that their respective teachings may be combined as suggested by the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Giri et al., Klein et al., Kikuma et al., Koopmans, nor Higgins, III disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's amended claims.

Summary

In view of the foregoing, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should the Examiner not be of the opinion that this case is in condition for allowance, it is requested that this amendment be entered for the purposes of appeal.

Serial No. 10/648,237

Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

Date: June 9, 2005

By:



Bruce H. Troxell
Reg. No. 26,592

TROXELL LAW OFFICE PLLC
5205 Louisbourg Pike, Suite 1404
Falls Church, Virginia 22041
Telephone: 703 575-2711
Telefax: 703 575-2707